SUMMARY MINUTES

OF THE

CIRCULATORY SYSTEM DEVICES PANEL MEETING

JUNE 23-24, 1999

Gaitbersburg Hilton Hotel
620 Perry Parkway
Gaithersburg, MD

CIRCULATORY SYSTEM DEVICES PANEL MEETING

June 23, 1999

PANEL PARTICIPANTS

CHAIRPERSON

Anne B. Curtis, M.D.
University of Florida

EXECUTIVE SECRETARY

John E. Stuhlmuller, M.D.
Food and Drug Administration

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Mr. Gary Jarvis
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Robert A Dacey
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Wolf Sapirstein, M.D., M.P.H.
Bette L. Lemperle, R.N., B.S.N., M.P.H.
Megati Moynahan, M.S.
Catherine P. Wentz, M. S.
Paul L. Chandeysson, M.D.
John Dawson, M.S., J.D.
Gary Kamer, M. S.

OPEN SESSION-June 23, 1999

Anne B. Curtis, M.D., Chairperson, called the meeting to order at 8:05 a.m. Executive Secretary John E. Stuhlmuller, M.D., read the conflict of interest statement, noting that waivers had been granted to Drs. Hartz and Perler. Other matters concerning Drs. Curtis, Crittenden, Pentecost, and DeWeese had been considered but deemed unrelated and their full participation would be allowed. He also read the appointment to temporary voting status for Drs. Bailey, DeWeese, Pentecost, Perler, and Roberts. After the panel members introduced themselves, Dr. Curtis recognized outgoing panel members Drs. Sethi and Gilliam for their contributions as panel members and presented them with plaques and certificates.

OPEN PUBLIC HEARING

Dr. Anthony D. Whitemore of the Society for Vascular Surgery and the International Society for Cardiovascular Surgery discussed the use of endovascular grafts for the treatment of abdominal aortic or aorto-iliac aneurysms. He stated that the use of these grafts appears to be safe and, in the short term, efficacious, but the long-term efficacy is unknown and careful monitoring of patients who receive this therapy will be essential. H recommended two conditions for recommending approval of the premarket approval applications (PMAs) to be considered in the session. The first is that the use of any device should be limited to physicians who have received specialized training in the use of that specific device, with the training provided at industry expense. The second is that all procedures performed with endovascular grafts should be entered into a national registry.

John Mannick of the Lifeline Foundation described a registry set up by the Lifeline Foundation with the New England Research Institute to follow patients who undergo abdominal aortic aneurysm repair with an endovascular grafts. He described key features of the registry, which is a collaborative effort among device manufacturers, clinical investigators, and other scientists.

There were no other requests to address the panel.

OPEN COMMITTEE DISCUSSION

Premarket Approval Application P990017 for Guidant Endovascular Technologies' EVT Abdominal Aortic Tube/Bifurcated Endovascular Grafting System

Company Presentation

Dr. Lori Adels gave a description of the device and its design philosophy. She described preclinical validation through in vitro testing on the attachment system, graft material, delivery system, and biocompatibility, and she outlined animal testing on chronic and acute effects. Dr. Adels noted that the clinical trials compared the device to open surgery in terms of adverse events, immediate benefits, and graft effectiveness. The study design was a concurrently controlled prospective trial at 22 centers using the tube and bifurcated devices with an intent-to-treat analysis that had good statistical power and follow-up. A randomized trial was attempted but proved impractical because of lack of enrollment.

Dr. Wesley Moore gave clinical safety data from the trial, stating that the device reduces adverse events and provides benefits in comparison to the open control group.

Dr. David Deaton described the effectiveness data and presented measures of implant effectiveness and performance. He also gave a clinical report on the Ancure delivery system, explaining its design goals, validation, and study design.

Sponsor representatives concluded that the device provides shorter hospital stays, fewer and shorter stays in the intensive care unit (ICU), lower operative blood loss, and the option of regional anesthesia. Safety considerations include fewer major complications, low operative mortality, and no aneurysm ruptures. Efficacy considerations include the high rate of deployment success with no ruptures and a low rate of aneurysmal enlargement.

FDA Presentation

Megan Moynahan, lead reviewer, gave the FDA review, noting that the panel was being asked to evaluate two generations of the device: the EGS and the Ancure modified delivery catheter. The EGS clinical studies characterize the long-term performance of the tube and bifurcated grafts in comparison to control, and the Ancure clinical study characterizes performance of the modified delivery catheter in comparison to the EGS. She reviewed the chronology of the PMA and of the FDA review, noting that all items have. been provided and most have been adequately addressed. Ms. Moynahan stated that there are no outstanding issues related to preclinical testing of EGS, that FDA and sponsors are working to finalize one preclinical item on sterilization validation, and that FDA is reviewing the sponsors' responses to remaining requests on four items. She read the FDA questions for panel review.

Panel Discussion

Dr. Anne Roberts provided a panel review. She applauded the sponsors' practical approach to the change in delivery system and had no problem with the lack of a randomized study. She stated that she would have liked a better delineation of the primary clinical endpoints and was concerned about perigraft leakage over the long term. She also listed 13 items she would like to have seen, relating to the following: number of patients screened, status of the endosac, range of aneurysm sizes treated, pre-procedure evaluation methods, postmarket follow-up for device breakage, discrepancy between core lab and investigator results on perigraft leakage, twisting of graft and effect on device placement, other therapies used to decrease leaks, use of heparin, other possible problems, tracking of patients over time, and physician training.

Dr. Bruce Perler provided a second panel review. He stated that the trial was well conducted and data were well presented, with the technology of real benefit in patient care. His concerns were the need for a patient registry and strict follow-up, the need for data on women regarding aneurysms and vessel access, the relationship between perigraft flow and change in aneurysm size, the incidence of late leakage, the process for dealing with persistent leaks, standards and indications for preoperation evaluation and patient. selection, and the rate of acute renal insufficiency.

Other panel questions concerned physician training requirements, gender issues, proper setting for the procedure, and the need for postmarketing surveillance and patient follow-up. Use

of heparin and antiplatelet agents was also a concern, as was use in high-risk patients who are not good candidates for surgery.

On the FDA questions, the panel agreed that the data presented permitted assessment of the short-term safety and effectiveness of the device, but suggested more data on long-term issues such as perigraft leaks, potential ruptures, and experience with women patients. The panel also wanted to review requirements for those performing the procedure.

The panel recommended keeping the indications for use as stated but adding a definition of grade I and II infrarenal abdominal aortic aneurysms for clarity.

On labeling, the panel recommended that the study findings on endoleaks and the topics not studied should be explicitly stated. Information should be added to note the lack of data on women, but the restriction on use in healthy, young patients was deleted. The list of acute symptoms that may be expected if rupture occurs should be placed in the patient information. A warning should be included for patients who cannot undergo appropriate imaging studies or are symptomatic of imminent rupture. The panel thought that the relationship between perigraft leak and aneurysm expansion is worrisome and probably warrants intervention, and the meaning of a persistently large aneurysm that does not shrink is unclear. The warning regarding use in patients for whom antiplatelet, anticoagulation therapy or thrombolytic drugs are contraindicated was deleted.

In discussing follow-up, the panel recommended ultrasounds or CT scans every six months to one year if the patient is well or every three to six months if there are endoleaks or

enlargements. One possibility mentioned was an ultrasound every six months and a CT scan once a year.

Other labeling suggestions included a precaution that very few women were studied and their incidence of having to go to open repair is higher. A warning about use with patients who are not good candidates for surgery was recommended in case conversion to open repair becomes necessary.

On follow-up issues, a postmarket study was recommended to follow up the issues listed by the FDA in question 8 and to follow a certain number of women, perhaps 100-l 50, to be studied in addition to the original study cohort for at least five years with imaging studies every six months at least for the first year. These studies should be forwarded to the core lab.

The panel endorsed the concept of a device registry and required physician training.

OPEN PUBLIC HEARING

The company representatives thanked the panel.

The FDA representatives clarified the distinction between a registry and a postmarket study.

Patricia Cole of the Society for Cardiovascular and Interventional Radiology urged the panel to adopt a multidisciplinary approach to long-term follow-up.

Vote and Recommendations

Dr. Stuhlmuller read the voting options. A motion was made and seconded to recommend the PMA as approvable subject to the following conditions: I) Patients enrolled in the cohort

should be followed for at least five years with annual imaging and clinical follow-up. 2) The company should study an additional cohort of women, with the number to be determined by statisticians, and report long-term safety and efficacy results to the FDA. 3) A patient educational brochure stating the risks and the benefits, expectations, and symptoms of imminent rupture should be included. 4) Physician training and a physician brochure should be mandated as part of the PMA approval:

The motion was passed unanimously. A registry to follow every patient implanted with such a device was strongly endorsed by the panel.

PMA Application P990020 for Medtronic AneuRx, Inc.'s AneuRx Bifurcated Endovascular Prosthesis System

Company Presentation

Noel Messenger described the AneuRx stent graft system and its delivery system. He explained the clinical study design, which was a prospective multicenter clinical investigation comparing the AneuRx Stent Graft with surgical repair of abdominal aortic aneurysms (AAA), and outlined the study objectives. He described patient enrollment by center and pooling of data, as well as data completeness.

Christopher K. Zarins listed the inclusion and exclusion criteria and explained the primary and secondary endpoints, which he presented. Primary endpoints included technical success, mortality, major morbidity, rupture of aneurysm, enlargement of aneurysm, endoleak, conversion to surgical repair, stent graft patency, stent graft migration, device integrity, and

additional procedures. Secondary endpoints included duration of surgical procedure, amount of blood loss, number of patients requiring blood transfusion, time to endotracheal extubation, time to unassisted ambulation, time to resumption of normal diet, time in ICU and hospital length of stay. Study results found no difference in mortality, reduced major morbidity, reduced blood loss and blood transfusion, reduced ICU stay, earlier return to function, reduced hospital length of stay, and no difference in patient survival at one year.

Rodney A. White discussed the primary endpoints and provided a statistical risk/benefit analysis on safety and effectiveness and clinical utility. He listed as a basis for approval comparable mortality, reduced major morbidity, a 98% technical success rate, a 90% primary success rate and 92% secondary success rate, a reduced ICU and hospital stay, and quicker patient recovery.

FDA Presentation

Catherine Wentz, lead reviewer, described the device, which is a bifurcated modular system designed for endovascular repair of abdominal aortic aneurysms with or without iliac involvement, and explained its components. She listed the preclinical testing, noting that all preclinical issues have been addressed. Ms. Wentz described the prospective, nonrandomized controlled clinical study, explaining that the PMA data represent patients from the Phase II study and include 410 test arm patients and 66 control patients. All statistical issues have been resolved with the exception of evidence of a statistically significant difference noted in the severe adverse event rate between centers,

Ms. Wentz explained that safety endpoints were evaluated by a direct comparison between the surgical and tests groups for major morbidity and mortality, but many efficacy endpoints were unable to be compared to the surgical cohort because they did not apply. Clinical utility endpoints were compared between surgical and test groups.

Ms. Wentz listed four ongoing issues affecting device evaluation for safety and effectiveness: the two ruptures that have occurred; the high leak rate and their unclear relationship to aneurysm growth and rupture; the apparent difficulty in interpreting the films to determine the origin and significance of a leak, as is evident from the discrepancy between core lab and hospital findings; and appropriate follow-up for patients with or without a leak. She stated that the primary limitation of this study was the use of a nonrandomized, nonconcurrent control group.

Dr. Michael Pentecost gave a panel review. He had three concerns: the sequential nature of patient recruitment; the higher mortality rate of women with the stent than men, and data questions on the sensitivity of measurement, variability of readings, and discrepancies between the core lab and the study centers.

Dr. James DeWeese gave a second panel review. His concerns involved the rupture problem, the relationship between endoleaks and increased diameters and that between an occluded artery and colon ischemia, and comorbidities in the elderly, such as aspiration linked to gastro-reflux.

Panel comments concentrated on the relationship between aneurysm enlargement and the risk of rupture, the need for patient follow-up, with or without endoleaks, and the learning curve of surgeons.

In discussing the FDA questions, the panel thought that the data permitted assessment of safety and effectiveness and that the proposed indications for use were clear. They recommended adding the standard contraindication against device use in those allergic to any component material. On labeling, the panel recommended adding information on incidence and types of endoleaks associated with the system, but striking the restriction on use with healthy, young individuals. Acute symptoms of rupture should be moved to the patient manual, and the warning regarding use in patients with impending ruptures (a term the panel disliked) should be revised to warn against device use in patients who cannot receive imaging studies. The panel found no data to support a warning about dislodging the device or about use in patients for whom antiplatelet, anticoagulation or thrombolytic drugs are contraindicated. They recommended putting information on the nonspecific relationship between endoleaks, aneurysm growth, and rupture in the labeling, and they added a statement that moderate or proximal leaks should have intervention immediately. A statement about the lack of available data on women was also recommended.

A recommendation in the labeling for some sort of imaging technique at least every six months to one year was recommended. An algorithm was suggested for more frequent intervention for nonproximal or distal endoleaks. Further investigations should include the need for clinical and imaging follow-up to know more about endoleaks, rupture of aneurysm, and stents

in the future. The panel suggested that all the long-term issues identified by the FDA were reasonable topics for a postmarket study on the original cohort. They recommended data on height, weight, race, and gender should be included in any follow-up study. Imaging and clinical follow-up of patients in the trial were recommended, and a registry such as the Lifeline Registry was commended as an excellent idea.

OPEN PUBLIC HEARING

The company thanked the panel and the FDA. There were no other requests to speak.

Dr. Stuhlmuller read the voting options.

A motion was made and seconded to recommend the PMA as approvable subject to the following conditions: 1) Five-year follow-up of the original cohort of study patients, to include clinical and imaging follow-up up at six months to one year intervals; 2) Addition of a cohort of 100 women to be followed long-term, 3) Additions to the patient education brochure as described above; 4) Mandatory physician education; 5) Labeling changes as described above. The motion was unanimously approved.

The panel was adjourned for the day at 5:30 p.m.

CIRCULATORY SYSTEM DEVICES PANEL MEETING

June 24, 1999

PANEL PARTICIPANTS

CHAIRPERSON (a.m.)

Anne B. Curtis, M.D.
University of Florida

ACTING CHAIRPERSON (p.m.)

Tony Simmons, M.D.
Bowman-Gray School of Medicine

EXECUTIVE SECRETARY

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Bette L. Lemperle, R.N., B.S.N., M.P.H.
Lisa Kennell, B.S.
Stuart Portnoy, M.D., MS.
Doris Terry, B.S., M.S., M.S.B.
George Koustenis, M.A.

OPEN SESSION-June 24, 1999

Panel Chair Anne Curtis called'the session to order at 8: 10 a.m. Executive Secretary John Stuhhnuller read the conflict of interest statement, noting that Dr. Curtis would not participate in the afternoon session because of a conflict of interest and that waivers had been granted to Drs. Hartz, Simmons, and Brinker. Matters involving Drs. Hartz, Brinker, and Pentecost had been considered, but their full participation was allowed. Dr. Stuhlmuller read appointments to temporary voting status for Drs. Brinker and Domanski and noted that Dr. Callahan of the FDA was unable to attend because of **illness.**

Dr. Larry Kessler of the FDA discussed postmarket evaluation. He noted that the cardiovascular area was perhaps the richest area for postmarketing problems and discussed the value of postmarketing studies, noting that many items suggested by panels are not followed up. Tabling PMA applications until further follow-up is available was discussed as an option, but it was noted this is not a service to the public. Dr. Kessler clarified that using postmarketing studies for continued monitoring of patients from a trial or for updates is commonly done and provides valuable information, but new issues are not commonly addressed.

OPEN PUBLIC HEARING

There were no requests to speak

Premarket Approval Application P980043 for Medtronic Cardiac Surgery's Hancock H Bioprdsthesis Heart Valve

Company Presentation

Dr. Thomas Armitage gave a description of the device and summarized the submission background, noting that the data are not from a formal clinical trial and do not meet those requirements. The current submissidn was based on a long-term clinical study, a Toronto Hospital case series, worldwide explant analysis, and worldwide clinical experience. He explained the design, objectives, and methods of the long-term clinical study, stating that it was a prospective, nonrandomized, multicenter study using a common protocol to study isolated aortic (AVR) and mitral valve replacement (MVR) with every other year assessment of patient status. Long-term mortality and valve-related morbidity using NYHA class were the endpoints, and control data included Objective Performance Criteria (OPCs), published literature, and Hancock Standard PMAA data.

For both the AVR and MVR, Dr. Armitage summarized patient demographics and preoperative data, as well as operative data and follow-up results from the Medtronic Long-term Clinical Study. He presented statistics on mortality and freedom from death (all causes), valve-related death or freedom from valve-related death, late valve-related adverse events and freedom from valve-related adverse events, freedom from structural valve deterioration in comparison to controls and by age, as well as freedom from valve-related reoperation in comparison to controls. He also presented data on NYHA class at preoperative and latest evaluations.

Dr. Tirone David presented similar material from the Toronto case series.

Dr. Fletcher Miller discussed the Toronto hemodynamic evaluation, based on a retrospective chart review at the Toronto Hospital, where 343 patients were referred for echocardiography and followed clinically. After explaining the demographic data, Dr. Miller gave statistics on mean gradient, effective orifice area, and valvular regurgitation for aortic and mitral valve replacement.

Dr. Armitage ended by analyzing device explants worldwide. He concluded that the time to failure and the pathology of the Hancock II explanted bioprostheses are consistent with those of other models of Hancock bioprostheses, as well as other commercially available porcine bioprostheses, and that the long-term data presented demonstrate that the Medtronic Hancock II bioprosthetic valve is safe and effective for replacement of a diseased native valve or prosthetic *valve.*

FDA Presentation

Lisa Kenriell, FDA review team leader, gave a brief history of the PMA, noting that the first PMA had been submitted by a previous sponsor; the device and data were later purchased by Medtronic, which had previously submitted two PMAs for the device. The clinical data consisted of the Medtronic long-term cohort and the Toronto case series of 1112 patients at three Canadian centers. Follow-up ranged from two to14 years. Study limitations for the Medtronic cohort included lack of a standard protocol for echography, low follow-up rates for most recent follow-up, and lack of poolability for endocarditis and valve-related reoperation. For the Toronto case series, study limitations included differing definitions for primary thrombosis, primary leak and

structural dysfunction, and different definitions for complications and reporting schemes for Toronto cohort compared to Medtronic cohort. The Toronto case series also did not include peripheral or MI events and only presented valve-related events, and patient years were calculated to occurrence of first event. Follow-up consisted mainly of mailed surveys in the series. She also listed limitations on the hemodynamic data subset.

Dr. Renee Hartz provided a panel review. She thought the Medtronic and Toronto data showed reasonably good follow-up, but expressed concerns over structural deterioration in patients under 60 and over thromboembolic events.

Dr. Michael Crittenden also provided a panel review. He thought the data met the spirit of the OPC criteria but listed six concerns involving timing of the PMA, the reason for an equivalence versus superiority trial, and issues of design, engineering, and labeling.

Other panel comments were divided among those who felt the device had withstood the test of time despite the limitations on data and follow-up and those who were more concerned about limitations on the data, particularly the adverse event rate. Major concerns were the thromboembolic rate and the lack of data on various sizes. There was a brief discussion about engineering issues such as long-term durability for certain sizes and types of the device, with one FDA expert asking for more information on valve loading and crack likelihood and another comfortable with the material presented.

In discussing the FDA questions, the panel felt there were sufficient clinical data to come to conclusions about safety and effectiveness. Panel members preferred results of the human

explants and adverse event rates for structural valve deterioration rather than animal studies, which they felt did not add anything other than a claim on which there were no clinical data. The panel had no problem with data presented on the various sizes and commented that the various sizes were necessary.

Members had no suggestions on the indications for use except that the wording should be comparable to other tissue valves. They recommended rewording the contraindication to state, "Use of the mitral bioprosthesis or mechanical valve in patients with a small, hypertrophic left ventricle may be contraindicated because of the potential for perforation of the ventricular wall by the stent posts." The rest of the statement was deleted. A precaution against use with children and a warning against use with chronic atria1 fibrillation, in pregnant women, and in people under age 60 was suggested. Use of a generic booklet counseling patients was recommended. Panel members had no recommendation for adding physician training to the labeling, but they did suggest revised wording on reflux and its relationship to perivalvular leak. They had no other suggestions.

OPEN PUBLIC HEARING

There were no other requests to speak from the public, the company, or the FDA.

Dr. Stuhlmuller read the voting options to the panel.

A motion was made and seconded to recommend the PMA as approvable. A motion was made to amend the motion and recommend the PMA as approvable pending review of the new

engineering data and with changes to the labeling to reflect concerns about thromboembolytic events. The latter motion was withdrawn, and the former motion passed unanimously.

Premarket Approval Application P980050 for Medtronic, Inc.'s Medtronic Model 7250 Jewel AF Arrhythmia Management Device with the Model 9961 Application Software

Company Presentation

Sponsor representatives provided background information on the device and conditions it is intended to treat. They provided an overview of the system, which includes a standard dual chamber ICD that detects and treats ventricular arrhythmias, using PR Logic and atria1 tachyarrhythmia detection algorithms and atrial tachyarrhythmia therapies and prevention algorithms. They discussed the device size, maximum output, pacing mode, detection, ventricular therapies, and atria1 features.

Sponsor representatives also discussed the primary and secondary objectives, acceptance criteria, study design, methodology and results of the clinical studies. The Jewel patient population was divided into two subgroups; those with ventricular tachyarrhythmias only and those with qualifying atrial tachyarrhythmias as well. The multicenter, prospective study was conducted in the United States, Europe, and Canada. VT/AT patients were randomized to atrial prevention and termination therapies on or off during the first three months of enrollment and then crossed over for the next three months. From six months on, programming of atrial therapies was at the discretion of investigators. VT-only patients were not subject to randomization. Inclusion criteria and methodology for each of the objectives were described.

Sponsors concluded that the Jewel AF system is safe as measured by system-related complication-free survival and survival from all causes, compared to the Gem DR. They stated that the system is effective in detecting and treating both atrial and ventricular tachyarrhythmias. It terminated 59 % of AT episodes with pacing therapies. Atrial defibrillation was successful in terminating 75 % of AF episodes. The Jewel AF system's pacing, sensing, and detection features function as expected, and atrial DFTs are stable between implant and three months.

FDA Presentation

Doris Terry, primary FDA reviewer, introduced the review team She listed the system components and described the device, which detects and treats episodes of atrial and ventricular tachyarrhythmias and bradycardia by delivering defibrillation, cardioversion, ATP or bradycardia pacing. Atrial arrhythmias are detected by the Model 7250 as either AF or AT by monitoring the cycle lengths and regularity of the atria1 intervals. She summarized the preclinical tests, which consisted or bench and/or animal testing on components, subassemblies, application software, firmware, and the finished device. Performance met the specifications.

Ms. Terry also summarized the clinical studies, which involved 303 patients and 293 implants, 221 on VT/AT and 72 on VT. Primary study objectives were to evaluate system-related complications, effectiveness of the model 7250 in terminating atrial tachyarrhythmias, and performance of the dual chamber algorithm. Secondary study objectives included overall mortality, change in frequency and duration of A-Tach, m&n atrial DFT, and specificity of the SVT rejection rules, sensing packing and detection capabilities of the model 7250, and pacing and

sensing performance of the model 6943 lead for atria1 use. Data analysis was based on time to first system-related complication as determined by crude hazard rate and Cox regression methods. Episode treatment effectiveness was determined by a generalized estimating equation. Results were compared to the Model 72 19C and the Model 727 1 GEM DR.

Ms. Terry presented statistics on hazard rate complication-free survival, comparison of relative risk of system-related complications, and relative risk with therapies programmed on versus off. She summarized mortality data and compared it to Kaplan Meier estimates. Ms. Terry discussed episode treatment effectiveness for atrial tachyarrhythmias, pacing/sensing and detection performance, and frequency and duration of atrial tachyarrhythmias. She noted that 96 patients were implanted with the Model 6943 Spring Ventricular/atrial lead in the right atrium, and pace/ sense parameters were stable through six months. She summarized lead-related adverse events and concluded that Medtronic, Inc. has provided data in support of the safety and effectiveness of the Model 7250 Jewel AF AMD system. She read the panel questions for discussion.

Dr. Jeffrey Brinker was the lead panel reviewer. He noted that this device is predicated on other, well established devices, and asked whether there is excessive risk in a new population for a new indication. He also asked whether efficacy had been established in detection and treatment of ventricular arrhythmias. He discussed lead dislodgments, noting that several were first-time use and none had subsequent dislodgments.

Dr. Michael Crittenden also reviewed the device. He asked the sponsors about improved survival rate with the Jewel AF, which is intriguing but not used as a basis for labeling, about use of antiarrhythmic drugs, and about the threat of embolism.

Panel questions concentrated on lead dislodgments and lead compatibility, with particular concern on the potential for harm of the atrial lead.

In discussing the FDA questions, the panel failed to reach consensus about whether the clinical data were adequate for evaluation of safety and effectiveness of the device. Some members though that the device had been proven safe but not effective, while others thought its clinical utility was not proved. The panel revised the second paragraph of the indications for usage to read, "The Model 7250 Jewel AF System is also designed for patients who either have or are at risk of developing atria1 tachyarrhythmias, but is not indicated for patients who do not have the VT/VF stated above." The panel added the sentence "Clinical utility for atria1 tachyarrhythmia therapies has not been determined."

An additional contraindication was added against use with chronic AF. The panel failed to reach consensus on whether a warning should be included for patients requiring greater than 27 Joules of defibrillation energy, with some arguing for the warning and others arguing for consistency in labeling among similar devices. The panel thought the data were insufficient to evaluate question 5. It was recommended that the caution listed in question 6 be deleted. The panel was unable to finish the remainder of the questions because of time constraints and moved to a vote.

OPEN PUBLIC HEARING

Sponsor representatives stated that data showed no increase in mortality, device safety, and clinical utility. There were no other requests to speak.

Dr. Stuhlmuller read the panel voting options.

A motion was made and seconded to recommend the PMA as approvable subject to the following conditions: 1 j The changes in labeling discussed above should be included; 2) A postmarket study on 100 new patients should be followed for six months to determine dislodgment rates and performance function of the 6943 atrial DF lead; 3) The 50 hertz burst therapy should be studied according to FDA specifications as a panel homework assignment. The motion carried.

The meeting was adjourned for the day at 4:45 p.m.

I certify that I attended the Open Session of the Circulatory Systems Devices Panel Meeting on June 23 -24, 1999, and that this summary accurately reflects what transpired.

John E. Stuhlmuller, M.D.
Executive Secretary

12 July 99

I approve the minutes of this meeting as recorded in this summary.

Anne B. Curtis, M.D.
Chair, June 23 and June 24, a.m.

Tony W. Simmons, M.D.
Acting Chair, June 24, p.m.

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